Content of Presentation

I. Who Uses Water ?

II. Where Does the Water Comes From ?

III. The Water Use Permit

IV. Other Elements Affecting Water Supply

I. Who Uses Water ?

What is a Consumptive Use of Water?

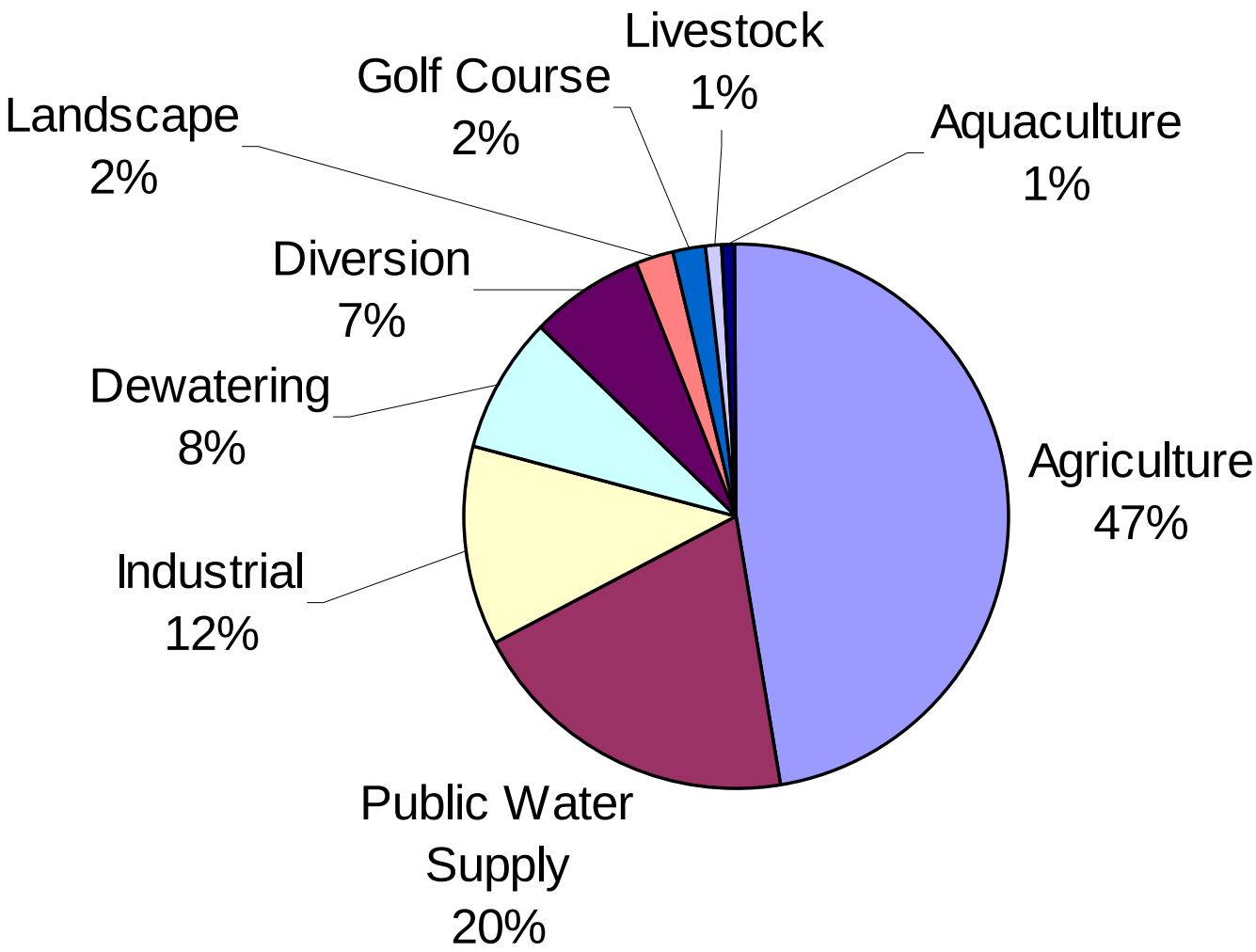
- 62-40.210 F.A.C.: Any use of water which reduces the supply from which it is withdrawn
- Uses which do not require a CUP
  - Operation
  - Navigation
  - Works of the District
  - Storm Water permit
- Ultimately, who needs a water use permit ?

I. Who Uses Water ?

Classes of Water Use 40E-21.651

- Irrigation
  - Agriculture
  - Diversion/Impoundment
  - Landscape
  - Recreation
  - Livestock
- Public Water Supply (PWS)
- Commercial/ Industrial

DISTRICTWIDE ALLOCATION OF INDIVIDUAL PERMITS JUNE 2001 (7 BGD)



I. Who Uses Water ?

Characteristics of Water Use: Irrigation

- Basis of Need
  - Evapotranspiration (ET) deficit supplement
  - Irrigation system efficiency
- Supplemental ET factors
  - Crop Type
  - Time of Year
  - Rainfall

I. Who Uses Water ?

Characteristic of Water Use: Irrigation

- Irrigation system efficiency factors
  - soil type
  - irrigation system
    - Seepage 20-60%
    - Overhead 75-85%
    - Micro 85%
  - Resource efficiency factors

I. Who Uses Water ?

Characteristic of Water Use: PWS

- Basis of Need
  - Population: normal/seasonal
  - Growth projections
  - Per capita use
    - Domestic use
    - Commercial/Industrial
    - Other non-domestic use
  - Large user agreements

I. Who Uses Water ?

Characteristic of Water Use: PWS

- Efficiencies
  - Disposal vs Reuse
  - Unaccounted for use
  - Source of supply/treatment
    - ASR
    - RO
    - Membrane Softening

I. Who Uses Water ?

Water Conservation Program: PWS

- Eight Mandatory Elements
  - 4pm-10am watering ordinance
  - Xeriscape ordinance
  - Ultra low plumbing ordinance
  - Water conservation rate structure
  - Leak detection program
  - Rain sensor ordinance
  - Water conservation public education
  - Feasibility of reuse

I. Who Uses Water ?

Water Conservation Program: Irrigation/ Industrial

- Xeriscape
- Rain Sensor
- Audit of use
- Irrigation hours 4pm to 10 am

II. Where Does the Water Come From?

Rain !

- Urban Water Budget
  - 50-60 inches annually
  - 38% runoff to tide
  - 50% ET
  - 12% water use
- Natural system water budget
  - ET ~ rainfall

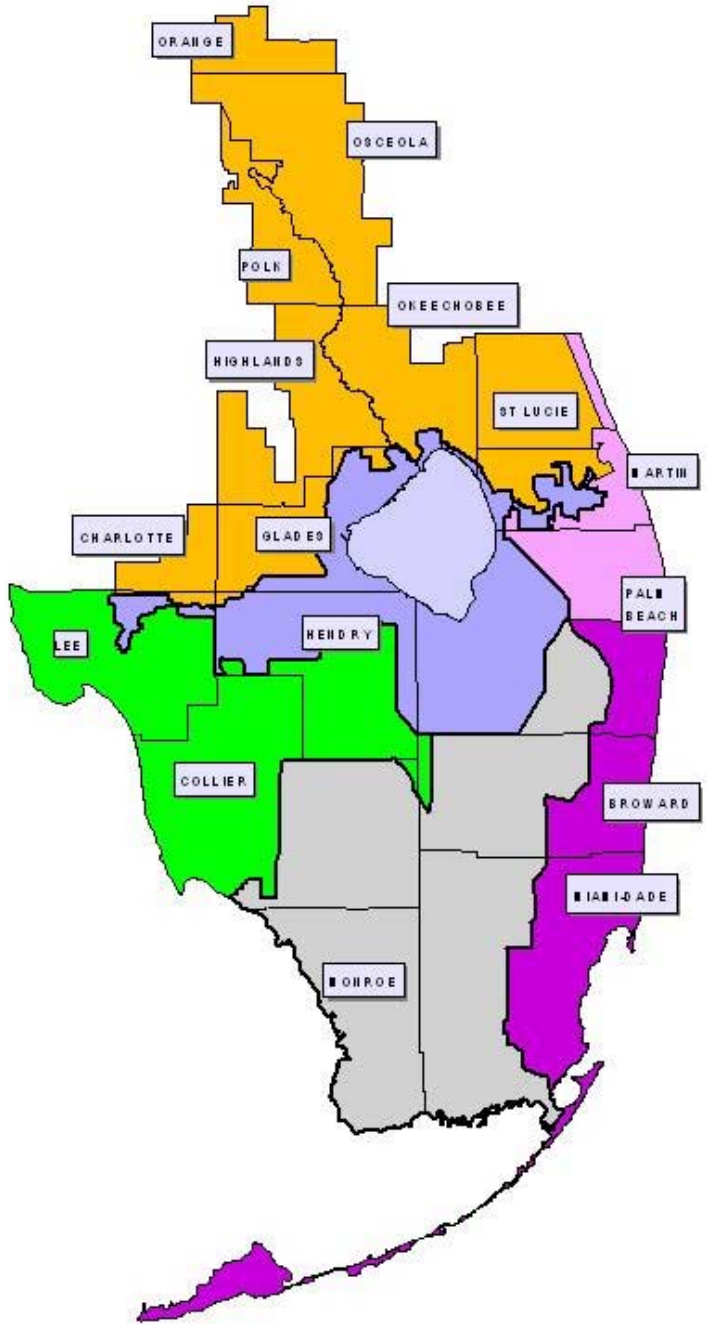
II. Where Does the Water Come From?

Sources of Water Supply

	Permits	
• Groundwater	1600	34%
• Surface/ground water	840	29%
• Surface water	950	37%

WATER SUPPLY SOURCES WITHIN THE S.F.W.M.D.

- OKEECHOBEE SERVICE AREA / SURFACE WATER
- GW / SURFICIAL & INTERMEDIATE AQUIFERS
- GW / FLORIDAN AQUIFER
- GW / SURFICIAL AQUIFER
- GW / BISCAYNE AQUIFER
- CONSERVATION AREA / EVERGLADES NAT'L PARK



II. Where Does the Water Come From?

Characteristics of Groundwater Supplies

- Factors affecting the yield
  - Permeability
  - Storage
    - Water Table Aquifer
    - Confined Aquifer
  - Recharge
    - Surface Water/ Groundwater interaction
    - Leakance
  - Freshwater or Saline?

II. Where Does the Water Come From?

Factors Affecting Groundwater Availability

- Saltwater intrusion
  - Vertical
  - Lateral
- Wetland impacts
- Pollution
- Impacts to other existing legal users
- Aquifer mining/subsidence

II. Where Does the Water Come From?

Characteristics of Surface Water Supplies

- Storage (relative to groundwater)
- Recharge
- Connectivity
  - Direct
  - Indirect
- Groundwater interaction
- Water quality

II. Where Does the Water Come From?

Droughts: So What's the Problem?

- Low Topography
- High ET
- Low Storage
- High Permeability
- High Drainage
- Saltwater intrusion/wetland dry outs

III. The Water Use Permit

Precepts of Chapter 373, F.S., Part I and II

- 'Model Water Code': 1972
- No Property Interest in Water
- Public Interest
- East and West Common Law Blended
- Administrative System- Need Permit (Exceptions)

III. The Water Use Permit

Usufructuary Right !

- A water use permit is a protected “right to use”. Authorization does not “run with the land” as a property right but requires demonstration of need for water and ability to use in a wise manner.
- A permit is a conditional authorization
- It is issued for a fixed duration after which the right has to be reestablished or it is cancelled.

III. The Water Use Permit

Who Needs One ?

- All consumptive uses regulated under Part II of 373 F.S.
  - Exemptions/ permit not needed
    - Single family/duplexes
    - Fire Protection
    - Reuse water
    - Sea water

III. The Water Use Permit

Types of Water Use Permits (Thresholds)

- General Permits
  - RTA < 10,000 gpd
  - Standard < 100,000 gpd
  - So. Dade < 500,000 gpd
- Individual Permit
  - Larger demands requiring Governing Board approval

III. The Water Use Permit

How Do You Get a Water Use Permit?

- Three prong test (373.223 F.S.)
  - Reasonable beneficial
  - Will not interfere in ELU
  - Consistent with public interest

III. The Water Use Permit

Reasonable -Beneficial Prong

- 373.019 (13), F.S. -- Efficient, Economical, Reasonable and Consistent with Public Interest
- Chapter 62-40, F.A.C. -- Water Conservation, Suitability of Use to Source, Quality
- Dynamic concept-- Society, Technology, Environmental and Hydrologic Changes

III. The Water Use Permit

Will Not Interfere with Presently Existing Legal Use of Water

- Prior Appropriation Concept
- “Legal Use” -- Permitted or Exempt
- Link to Permit Duration

III. The Water Use Permit

Consistent with Public Interest

- State Water Policy - Chapter 62-40, F.A.C.
  - Protection of Natural Resources
  - Special designations
- Regional Water Supply Plans
- "Assurances"
  - CERP
  - Governor's Commission

III. The Water Use Permit

What Do You Get ?

- Right to use
- Certainty of supply
  - Type
  - Level of certainty

III. The Water Use Permit

Level of Certainty

- Define reasonable amount of water
- Establishes degree of protection
  - Natural system
  - ELUs
- Limits the extent of water available from the source
- Consistent basis for comparison

III. The Water Use Permit

Types of Certainty

- Physical
  - Water physically available to users - without harm to water resources
- Tenure
  - Water available for permit duration
  - Statutory assurances that permit will be modified/reduced only in certain circumstances

III. The Water Use Permit

Types of Certainty (Continued)

- Legal
  - Water availability will not be interfered with by other users
  - No competition for water from other users

III. The Water Use Permit

What Does the Allocation Mean?

- Reasonable demand concept
- “Speed Limit”
- Water Shortage
  - Temp reduction in use

III. The Water Use Permit

How to qualify for one?

- Criteria in Basis of Review
- RAIs - resolution of issues
- Reasonable Assurance Standards
  - models/ monitoring
- Limiting conditions assigned

III. The Water Use Permit

Compliance

- Enforcement authority
  - Civil penalties
  - Mitigation requirements
  - Permit modification
  - Permit revoked

III. The Water Use Permit

Permit Renewal Standards

- No presumption for renewal
- Review as an initial application
- Changed resource conditions/new technology
- Incorporate public interest and resource goals

III. The Water Use Permit

Implications of Level of Certainty

Drought Event Return Frequency

1-in- 5? 1- in-10? 1-in-20?

- 1 - in - 10 Planning Goal
- 1 - in - 20?
- Protect against economic loss/

  High individual user certainty
- Substantial resource locked-up/

  Restricted number of users

IV. Other Elements Affecting Water Supply

Tools for Protection of Water Resources

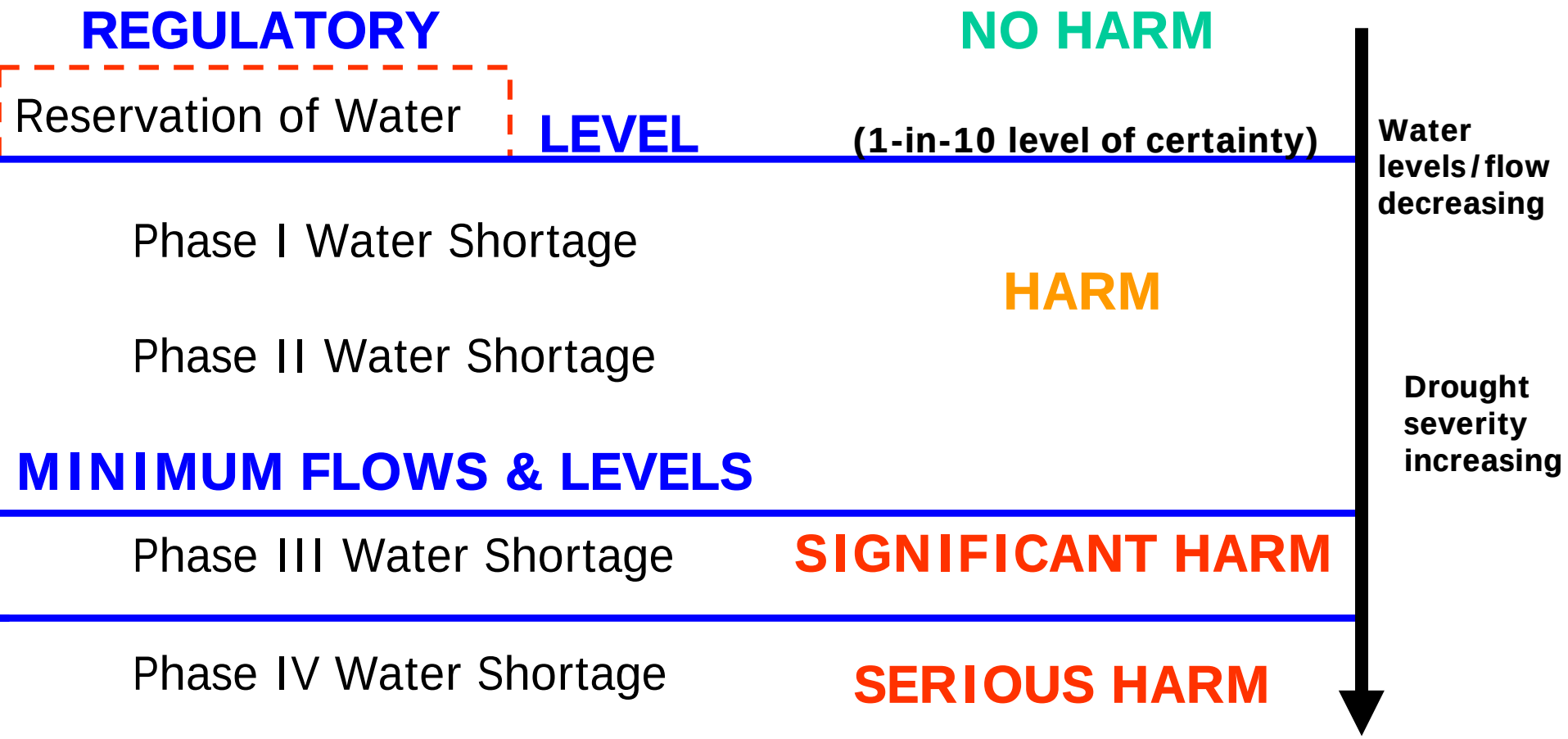
- Reservations:
  - Set aside water for protection of fish and wildlife or public health and safety; Existing legal uses are protected, if not contrary to the public interest
- Consumptive Use Permitting:
  - Prevent harm to the water resources; specific resource parameters implemented by rule

IV. Other Elements Affecting Water Supply

Tools for Protection of Water Resources (Continued)

- Minimum Flows and Levels:
  - Identify point of significant harm & develop prevention/recovery plan; Provision of additional sources concurrently with reductions in permitted withdrawals to the extent practical
- Water Shortage Program:
  - Prevent serious harm to water resources; temporarily restrict CUP level of usage

Inter-Relationship of Water Resource Protection Criteria



IV. Other Elements Affecting Water Supply

Reservations of Water: Some Precepts

1) Existing legal users protected so long as they are not contrary to the public interest

2) Reservations adopted by rule

3) Reservation would not be subject to water restricting until phase III or greater

IV. Other Elements Affecting Water Supply

Reservations of Water: Some Precepts (Continued)

4) The amounts of water covered under a reservation should be based on reasonable amounts which can be made available

5) Like a CUP, no delivery of reservation water shall be made until the water is available and deliverable

IV. Other Elements Affecting Water Supply

Rainfall Based Reservation : Concepts

- Amounts of water delivered based on
  - Rainfall distribution
  - Contributing basin size
  - Runoff factors
  - Physical system constraints

IV. Other Elements Affecting Water Supply

Water Use Rule Making

- Permit Renewals
  - How and when
  - Concerns over equity
- Permit Duration
  - How to blend certainty with a changing water supply picture

IV. Other Elements Affecting Water Supply

Water Use Rule Making (Continued)

- Regional Water Availability
  - **1 in 10 LOC based**
  - **Boundary conditions for urban area demands an regional systems**
    - seepage
    - surface water/canals
  - **Stop gap to prevent harmful withdrawals of regional water**
    - MFL prevention/recovery plans
    - Reservations

IV. Other Elements Affecting Water Supply

Water Shortage Plan 40E- 21 &22

- Resource based emergency plan
- Short term duration tied to drought
- Cutbacks based on shared adversity, efficiency of use and essential nature of use
- Phased restriction based on degree of harm

IV. Other Elements Affecting Water Supply

Water Shortage Trigger Phase I

- Coastal groundwater levels drop to a level favoring saltwater intrusion
- When LOSA is in SSM, secondary lake users on Phase I

IV. Other Elements Affecting Water Supply

Water Shortage Trigger Phase II

- Coastal saltwater intrusion occurring
- LEC:
  - WCAs below “floor”
  - Lake in SSM
  - Potential MFL criteria exceedance

IV. Other Elements Affecting Water Supply

Water Shortage Trigger Phase III

- Saltwater intrusion impacting yield of coastal wellfield
- Lake Okeechobee levels in Zone A SSM
- LEC:
  - WCAs below “floor”
  - Lake Okeechobee below 10.2’
  - MFL criteria exceedance (imminent/existing)
  - Coastal Canals below maintenance level

IV. Other Elements Affecting Water Supply

Other Considerations for Implement Water Shortage Cutbacks

- Month / Season - Rainfall / Demand
- Short-term / Long-term Climate
- Water Restriction Performance
- Economic Impacts
- Potential for Irreversible Adverse Impacts to Fish and Wildlife

IV. Other Elements Affecting Water Supply

Implementing Minimum Flows and Levels

- 5 MFL water bodies in SFWMD
- Harm vs Significant Harm defined
- Recovery vs Prevention strategies
- Direct withdrawal vs Indirect withdrawals

IV. Other Elements Affecting Water Supply

Implementing Minimum Flows and Levels

Impacts to CUPs (MFL in Recovery)

- Existing permits protected
- Renewals granted if:

  a) Impact addressed in Recovery Phase

  b) No increase in the previous impacts

IV. Other Elements Affecting Water Supply

Implementing Minimum Flows and Levels

Impacts to CUPs (MFL in Recovery)

- New uses/demands; Direct withdrawals
  - a) New water available
  - b) Approved alternative measure
- New uses/demands; Indirect withdrawals
  - a) Consistent with recovery plan

Impacts to CUPs (MFL in Prevention)

- Uses consistent with Prevention Plan

IV. Other Elements Affecting Water Supply

CERP: Dividing the Water Pie

Comprehensive Everglades Restoration Plan

- Restoration plan for the Everglades
- Merging of State and Federal Water Protection
- Creation of new water for natural systems
- Protection for consumptive uses of water

IV. Other Elements Affecting Water Supply

CERP: Dividing the Water Pie

Federal side

WRDA Sec. 601(h) Assurance of Project Benefits

- No CUPs until reservations to natural system
- Programmatic Regulations (process document)
- Project Implementations Reports (PIRs)
- Project Cooperation Agreements (PCAs)
- Operations Manual

IV. Other Elements Affecting Water Supply

CERP: Dividing the Water Pie

Identify water available to natural system

Project scale reservation for natural system by rule

Adjustment of reservation/ consistent operations of project and other projects

IV. Other Elements Affecting Water Supply

CERP: Dividing the Water Pie

State side

- Regional water supply plan updates
- Water Reservations 373.223(4)
  - Protection of fish and wildlife
  - Protection of public health and safety
  - Protection for ELUs not contrary to PI
- Consumptive Use Permits
  - Regional water availability rule

IV. Other Elements Affecting Water Supply

CERP: Dividing the Water Pie

Issues to be Resolved

- Estimations of water available by project
- Distribution of water between natural system and human uses
- Reservation Rulemaking
  - How are both interests protected?
- Revisions of reservations based on project as built